

**REMARKS**

Claims 1-20 are pending in the present application. Claims 1-20 are rejected. Claims 17-20 are herein amended.

**Claims Rejections under 35 U.S.C. §102(b)**

Claims 1-10 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,912,913 to Kondow et al. The Examiner asserts that Kondow et al. discloses the claimed invention, and notes particularly Figure 7, which illustrates a nitride-based semiconductor laser comprising a dielectric film 11 containing an oxide and a nitride (col. 11, lines 57-63 and col. 7 lines 35-52).

Applicants respectfully disagree with this rejection. (Note: this argument applies to all rejections against claims 1-16) Applicants note that Kondow et al. discloses a dielectric Bragg reflector comprising alternately stacked SiN and SiO layers. However, it does not appear to disclose the additional limitation of the dielectric film containing a nitride on the side of the interface between the dielectric film and the nitride-based semiconductor layer while containing an oxide on the side opposite to the nitride-based semiconductor layer. Furthermore, Kondow et al. does not disclose the limitation that the nitride film is formed on the surface of the nitride-based semiconductor layer, which claim language can only be anticipated by a reference that shows the nitride film formed **directly** on the surface of the nitride-based semiconductor layer.

Therefore, because all the limitations of claims 1 and 8 are not taught, Applicants submit that neither claims 1 and 8 nor their dependent claims 1-7, 9, and 10 can be anticipated.

Claim 17 is rejected under 35 U.S.C. §102(b) as being anticipated by JP 09-289358 to Inoguchi et al. The Examiner asserts that Inoguchi et al. discloses the claimed invention.

Applicants respectfully disagree with this rejection, because not all of the claim elements appear to be taught in this reference. Particularly, the side surface of the ridge portion of the cladding layer being “irregularized”. Applicants note that the Examiner may not have understood what is meant by this term in claim 17. Therefore, Applicants herein amend claims 17-20 in order to more distinctly claim the invention. In original claim 17, the description “the side surface of said ridge portion of said cladding layer being irregularized” is not clear, and is herein amended to read, “with a step formed between a projection portion (part of the ridge portion) of said cladding layer and a layer (the second contact layer 9 in the embodiment) formed on said projection portion”.

With the aforementioned amendment to claim 17, Applicants submit that the present invention would not have been obvious over the cited references.

#### **Claim Rejections under 35 U.S.C. §103(a)**

Claims 11-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kondow et al. as applied to claims 1-10 above, and further in view of U.S. Patent No. 5,838,705 to Shieh et al. Kondow et al. has been discussed above except for a dielectric film containing nitrogen and

oxygen instead of just oxygen. Shieh et al. teaches that a dielectric film containing nitrogen and oxygen (oxynitride) is an equivalent structure known in the art. Therefore, the Examiner asserts that one of ordinary skill in the art would have found it obvious to substitute a dielectric film containing nitrogen and oxygen for that containing just oxygen.

Claims 1, 14-16 and 18-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Inoguchi as applied to claim 17 above, and further in view of Shieh et al. The Examiner asserts that one of ordinary skill in the art would have found it obvious to substitute a dielectric film containing nitrogen and oxygen for that containing just oxygen.

Applicants respectfully disagree with this rejection. With respect to claims 1-16, Applicants note that Kondow et al. discloses a dielectric Bragg reflector comprising alternately stacked SiN and SiO layers. However, it does not appear to disclose the additional limitation of the dielectric film containing a nitride on the side of the interface between the dielectric film and the nitride-based semiconductor layer while containing an oxide on the side opposite to the nitride-based semiconductor layer. Furthermore, Kondow et al. does not disclose the limitation that the nitride film is formed on the surface of the nitride-based semiconductor layer, which claim language can only be anticipated by a reference that shows the nitride film formed directly on the surface of the nitride-based semiconductor layer. Applicants note no proper suggestion to one skilled in the art to have made the substitution.

Further with respect to the rejection of claim 14, Applicants emphasize that the dielectric film 11 is formed on the upper surface of the edge portion in Kondow et al. while the dielectric

film is formed on an absolutely different portion, i.e., on the flat portion of the cladding layer and the side surface of the ridge portion in claim 14 of the present invention.

With respect to claims 17-20, Applicants disagree with the rejection, in light of the present amendments. In original claim 17, the description “the side surface of said ridge portion of said cladding layer being irregularized” is not clear, and is herein amended to read, “with a step formed between a projection portion (part of the ridge portion) of said cladding layer and a layer (the second contact layer 9 in the embodiment) formed on said projection portion”.

With the aforementioned amendment to claim 17, Applicants submit that the present invention would not have been obvious over the cited references.

In order to clarify the contents of Inoguchi et al., Applicants submit herewith a partial English translation of paragraphs [0057] to [0065] of this reference.

Claims 17-20 have been amended in order to more particularly point out and distinctly claim the subject matter to which the Applicants regard as their invention.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that claims 1-20, as herein amended, are in condition for allowance. Applicants earnestly request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for appropriate disposition of this case.

By: **Yasuhiko NOMURA et al.**  
Serial No. **09/666,553**

Group Art Unit: **2828**  
Examiner: **Quyen Phan Leung**

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees that may be due with respect to this paper to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP



**Kenneth H. Salen**  
Attorney for Applicants  
Reg. No. 43,077

KHS/meu

Atty. Docket No. **001222**  
Suite 1000, 1725 K Street, N.W.  
Washington, D.C. 20006  
(202) 659-2930



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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made  
Partial Translation of JP 09-289358 to Inoguchi et al.

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**Serial No. 09/666,553**

**IN THE CLAIMS**

**Claims 17-20 are amended as follows:**

17. (Amended) A semiconductor light emitting device comprising:

an emission layer composed of a nitride-based semiconductor;

a cladding layer, formed on said emission layer, and composed of a nitride-based semiconductor having a flat portion and a ridge portion projection portion located on said flat portion; the side surface of said ridge portion of said cladding layer being irregularized, and a dielectric film formed on said flat portion of said cladding layer and the side surface of said ridge portion.

a layer of nitride-based semiconductor formed on said projection portion, wherein

said projection portion of said cladding layer and said layer formed on said projection portion form a ridge portion, and

said ridge portion has a step formed between said projection portion of said cladding layer and said layer formed on said projection portion;

said semiconductor light emitting device further comprising a dielectric film formed on said flat portion of said cladding layer and the side surface of said ridge portion.

18. (Amended) The semiconductor light emitting device according to claim 17, wherein  
said dielectric film contains a nitride on the side of the interface between said dielectric  
film and said ~~nitride-based semiconductor layer~~ side surface of said ridge portion while  
containing an oxide on the side opposite to said ~~nitride-based semiconductor layer~~ side surface of  
said ridge portion.

19. (Amended) The semiconductor light emitting device according to claim 17, wherein  
said dielectric film contains a compound containing nitrogen and oxygen on the side of  
the interface between said dielectric film and said ~~nitride-based semiconductor layer~~ side surface  
of said ridge portion while containing an oxide on the side opposite to said ~~nitride-based~~  
~~semiconductor layer~~ side surface of said ridge portion.

20. (Amended) The semiconductor light emitting device according to claim 17, wherein  
said dielectric film contains a nitride on the side of the interface between said dielectric  
film and said ~~nitride-based semiconductor layer~~ side surface of said ridge portion while  
containing a compound containing nitrogen and oxygen on the side opposite to said ~~nitride-based~~  
~~semiconductor layer~~ side surface of said ridge portion.